L 14494-66
ACC NR: AT6006265

for zero drift of the instruments and for the Eötvös effect. Laboratory tests showed an instrument accuracy of 1.5—2.0 mgal. Analysis of the observational materials showed that the root-mean-square error in determining the force of gravity at ocean stations using readings from four instruments is ±3.5 mgal.   [14]

SUB CODE: 08/ SUBM DATE: 29oct65/ ATD PRESS: 4194

13/

Card 2/2

L 35896-66   EWT(1)   GW/GD

ACC NR: AT6006266   (N)   SOURCE CODE: UR/0000/65/000/000/0121/0135

AUTHOR: Kuzivanov, V. A.; Magnitskaya, Ye. I.; Marakhovskaya, L. A.

ORG: None

TITLE: A method for the processing of recordings of overdamped gravimeters mounted on ships and aircraft

SOURCE: AN SSSR. Institut fiziki Zemli.   paratura i metody morskikh gravi-metricheskikh nablyudeniy (Apparatus and methods of marine gravimetric observations). Moscow, Izd-vo Nauka, 1965, 121-135

TOPIC TAGS: gravimetry, gravimetric analysis, graphic data processing, RESEARCH SHIP INSTRUMENTATION, GRAVIMETER

ABSTRACT: Gravimeters designated for use on ships and aircraft are often highly damped in order to reduce the influence of the mobile support. Such operating conditions require special methods for data processing. Consequently, the authors establish and discuss at considerable length four possible methods for the determination of the changes in gravimeter readings between the starting and current observations. A thorough analysis of experimental data gathered by the GAL and Gss-2 gravimeters shows that the error of gravimeter readings using all four methods is within ±1.2—1.8 mgl. One of the methods requires a processing time

Card   1/2

L 35896-66
ACC NR: AT6006266

of 3.5—4 hr, whereas two other approaches could be accomplished in 10—12 min.
The appropriate approaches should be used in dealing with a) not too perturbed
graphs, b) perturbed graphs of small period, and c) perturbed graphs with large
periods. Orig. art. has: 16 formulas, 11 figures, and 1 table.

SUB CODE: 08, 09/ SUBM DATE: 29Oct65/ORIG REF: 003

Card   2/2

L 32161-66   EWT(1)   GW

ACC NR: AP6010065   (N)   SOURCE CODE: UR/0387/66/000/003/0063/0073

AUTHOR: Kuzivanov, V. A.; Kogan, M. G.; Magnitskaya, Ye. I.

ORG: Institute of Physics of the Earth, Academy of Sciences, SSSR (Institut fiziki Zemli, Akademii nauk SSSR)

TITLE: The effect of horizontal and vertical acceleration on the readings of a strongly damped gravimeter

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 3, 1966, 63-73

TOPIC TAGS: gyrostabilized platform, accelerometer; gravimeter, ACCELERATION EFFECT

ABSTRACT: A study was made of the effect of horizontal and vertical accelerations on the readings of a pendulum-type gravity meter, mounted on an ideal gyrostabilized platform in an ideal universal joint. The resulting cross-coupling effect was analyzed theoretically, the parameters being related by the differential equation:

$$\ddot{\varepsilon} + 2\lambda\dot{\varepsilon} + \left(n^2 + \dot{\gamma}^2 - \frac{\ddot{X}}{l}\right)\varepsilon = +\frac{g_r}{l} + \frac{\ddot{Z}}{l}.$$

where ε is the angle of deviation of the pendulum from the horizontal, $\ddot{X}$ is the hori-

UDC: 550.831

Card 1/2

L 32161-66

ACC NR₁ AP6010065   O

zontal acceleration, n is the natural frequency of the pendulum gravimeter, λ is the damping characteristic, l is the reduced pendulum length and $\dot{\gamma}$ is the angular velocity of the support along the Z axis. A solution of this equation was derived of the form

$$\varepsilon = \varepsilon_0 + \delta\varepsilon_0,$$

where ε_0 is the solution of the 'abridged' equation:

$$2\lambda\dot{\varepsilon}_0 + \left(n^2 - \frac{\ddot{X}}{l} + \dot{\gamma}^2\right)\varepsilon_0 = +\frac{\dot{g}_r}{l} + \frac{\ddot{Z}}{l}.$$

The solution of ε_0 was an expanded integral equation while that of ε was an infinite trigonometric series. The magnitude of the cross-coupling effect was estimated by inserting numerical values for the above parameters and variables; for $\ddot{X} \approx \ddot{Z} \approx 50$ gal this effect reached 50 mgl and higher. The orbital acceleration was calculated at 125 mgal for $\ddot{X}=\ddot{Z}=50$ gal and $\omega=1$ sec^{-1}. Formulas were also derived for the changes in gravitational field with time using the same parameters. Numerically, this was calculated to be 1.4 mgl for $\partial g/\partial x = 10$ mgl/mile, $n^2=100$ sec^{-2} and $2\lambda=5000$ sec^{-1}. Orig. art. has: 1 table, 63 formulas.

SUB CODE: 08/   SUBM DATE: 19Feb65/   ORIG REF: 003/   OTH REF: 001

Card 2/2

ACC NR: AP7005646   SOURCE CODE: UR/0413/67/000/002/0094/0094

INVENTOR: Naumenko-Bondarenko, I. I.; Maslov, I. A.; Kuzivanov, V. A.

ORG: None

TITLE: A method for calibrating gravimeters. Class 42, No. 190596

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 94

TOPIC TAGS: gravimeter, instrument calibration equipment

ABSTRACT: This Author's Certificate introduces a method for using base inclinations to calibrate gravimeters designed for measuring the force of gravity in motion. The amplitude and phase characteristics of the instruments are determined from combined recordings of base inclinations and the readings of the sensing element. The variation in base inclinations is periodic with differing frequency and amplitude.

Card 1/2   UDC; 550,831

ACC NR: AP7005646
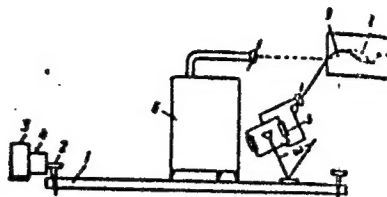
1--test stage; 2--adjustment screw; 3--electric motor; 4--speed reducer; 5--photo-electric registration device; 6--gravimeter; 7--photographic film; 8 and 9--recording

SUB CODE: 08/ SUBM DATE: 18Aug65

Card 2/2

BRUDNAYA, A.A., kand. sel'skokhoz. nauk; KUREPKO, I.A.; PARFILOVA, M. Ye,
kand. biolog. nauk; KOZAR', I.M., agronom; BESPYATYKH, A.M.,
agronom-entomolog; KARGIN, V.N., agronom; KUZIYEV, S., aspirant;
TKHORIK, I.S.

From the practices in the use of poisonous chemicals. Zashch.
rast. ot vred. i bol. 9 no.10:26-27 '64   (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy ir titut zerna i pro-
duktov yego pererabotki (for Brudnaya, Kurepko). 2. L'vovskiy
awl'skokhozyaystvennyy institut (for Parfilova, Kozar').
3. Bakhchisarayskoye proizvodstvennoye upravleniye (for
Bezpyatykh). 4. Kolkhoz "Pobeda")for Kargin). 5. Sredneaziat-
skiy institut zashchity rasteniy (for Kuziyev). 6. Zaveduyu-
shchiy otdelom zashchity rasteniy Yaroslavskoy opytnoy stantsii
(for Tkhorik).

KHAN, G.A.; KUZ'KIN, A.S.

      Study of electrochemical transducers for the control of residual
      cyanide concentrations in the pulp. Izv.vys.ucheb.zav.; tsvet.
      met. 3 no.2:43-49 '60.   (MIRA 15:4)

      1. Krasnoyarskiy institut tsvetnykh metallov, kafedra obogashcheniya
      poleznykh iskopayemykh.
                    (Flotation--Equipment and supplies)
                    (Potentiometric analysis) (Cyanide)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Action of gangue depressants in xanthate flotation with
hydrocarbon oils. TSvet.met. 35 no.2:9-11 F '62. (MIRA 15:2)
            (Flotation--Equipment and supplies)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Improving conditions and flow sheet for the flotation of
Dzhezkazgan copper sulfide ores with the use of hydrocarbon
oils. Sbor. nauch. trud. Gintsvetmeta no.19:212-239 '62.
(MIRA 16:7)

(Dzhezkazgan region--Copper ores)
(Flotation)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Action of hydrocarbon oils during flotation. TSvet. met. 36
no.5:17-24 My '63.   (MIRA 16:10)

ZORIN, L.F., inzh.; KUZ'KIN, G.V., inzh.

Mechanized coal mining with augers. Mekh. i avtom. proizv.
18 no.4:23-24 Ap'64.   (MIRA 17:5)

ZORIN, L.F., inzh.; KUZ'KIN, G.V., inzh.

Using the ShBM-2m cutter-loader in rapid development mining. Shakht.
stroi. 7 no.1:20-22 Ja '63.   (MIRA 16:2)

1. Shakhta "Novovolynskaya" No.8 imeni V.I.Lenina.
            (Lvov-volyn' Basin—Mining machinery)

SHAPIRO, I.B.; ULTURGASHEV, S.P.; MUZYAEV, V.F.; ANZHIGANOV, V.S.;
    KUZ'KIN, M.G., red.; SAMRINA, A.A., tekhn.red.

[Longevity; long-lived residents of Khakassia] Dolgoletie;
dolgozhiteli Khakassii. Abakan, Khakasskoe knizhnoe izd-vo,
1960. 70 p.   (MIRA 14:2)
    (Khakass Autonomous Province--Longevity)

KUZ'KIN, Mikhail Gavrilovich

[Railroad turns the lights on] Doroga zazhigaet ogni.
Abakan, Khakasskoe knizhnoe izd-vo, 1963. 146 p.
(MIRA 18:1)

Enrichment of tin concentrates S. F. Kuzkin. Metal-lurgiya 16, No. 9, 26 8(1941); Chem. Zentr. 1943, I, 1927. By combined disintegration and wet classification before the actual dressing the Sn content of the concentrates can be increased by 20 25%, while the SiO₂ content is reduced to 1/4 of its original value. During this operation the Sn loss amounts to 0.2 0.5 or 0.4 0.3% of the original content (1.5 or 0.8%). High grade Sn concentrates are of better use than low grade concentrates, since those with 60 70% Sn yield 1/2 to 1/4 of the slag resulting from concentrates contg. 40% Sn. H. Barschall

4

Practical application of electrostatic separation. S. P.
Kus'kin. Gornyi Zhur. 122, No. 10, 20-8(1948).   A
review.   M. H.

METALLURGICAL LITERATURE CLASSIFICATION

KUZKIN. S.P.

KUZ'KIN, S.F.

POL'KIN, S.I.; KUZ'KIN, S.F.; GOLOV, V.M.

Radiographic method of studying the interaction of flotation
reagent with the surface of minerals. TSvet.met. 28 no.1:13-19
Ja-F '55.   (MIRA 10:10)

1. Mintsvetmetzoloto.
                (Flotation)   (Radiography)

.

Kuz'kin, S. F.

137-1958-2-2231

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 4 (USSR)

AUTHORS: Kuz'kin, S. F., Nebera, V. P.

TITLE: Flocculating Suspended Matter by Means of Polyelectrolytes
           (Agregatsiya suspenziy polielektrolitami)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 13, pp 10-14

ABSTRACT: An analysis of data taken from the literature and of experimental
             data led to the conclusion that one of the most important ways of
             accelerating thickening was through the action on the pulp of
             chemical substances capable of flocculating the solid pulp particles.
             Most effective were polymers of certain specially treated compounds,
             namely, polyelectrolytes.
             Bibliography: 7 references.   A.Sh.

             1. Compounds--Polymerization   2. Polymers--Test methods   3. Polymers
             --Test results

Card 1/1

Kuz'kin, S F.

137-1958-3-4525

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 7 (USSR)

AUTHORS: Kuz'kin, S. F.,   Golov, V. M.

TITLE: The Action of Fe Compounds in Flotation of Beryl (Deystviye soyedineniy zheleza pri flotatsii berilla)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota i VNITO tsvetn. metallurgii, 1957, Nr 26, pp 7-20

ABSTRACT: An examination of the results of research dealing with the effect of Fe compounds on the flotation of beryl and some accompanying minerals, by means of cation and anion collectors. Radioactive tracers were employed in the course of the studies The absolute amount of the attached substance was determined directly on the surface of the powders, rather than by the residual concentration of the solution. The following was established: in an acid medium the following various Fe compounds become irreversibly attached on the surface of minerals: cations of Fe, products of hydrolysis of $FeCl_3$, positively charged sol of Fe hydroxide. In an alkaline medium the attachment of radioactive Fe is at a minimum and is independent of the nature of minerals involved. Starting with Fe^{+++}. and the products of hydrolysis

Card 1/2

137-1958-3-4525

The Action of Fe Compounds in Flotation of Beryl

of $FeCl_3$, the activation capacity of various Fe compounds de-creases toward the positively charged sol of Fe hydroxide; Fe sorbed in an alkaline medium with a pH of 9-11 is a very weak activator of some minerals. Oleate of Na reacts chemically in a definite proportion with tri-valent Fe adsorbed in an acid med-ium; the resulting compound is soluble in glycerin. The area of minerals covered by this flotation-active compound does not exceed that of the saturated monomolecular layer. The most rational methods for neutralization of the activating effect of Fe compounds were evolved, namely: a) the employment of reagents that do not form chemical compounds with the activator (IM-11, lauryl-amine); b) prevention of the fixation of ions and of Fe compounds on the surface of minerals by means of transforming them, within the pulp mass, to an insoluble or non-adsorbent state (by utilizing alkaline depressers) and removing the adsorbed Fe from the surface of minerals by means of acid solutions.

A. Sh.

Card 2/2

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 4 (USSR)   SOV/137-58-12-23933

AUTHORS: Kuz'kin, S. F.,   Golov, V. M.

TITLE: The Action of Calcium Compounds in Beryllium Flotation   (Deystviye soyedineniy kal'tsiya pri flotatsii berilla)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota, 1957, Nr 27, pp 43-51

ABSTRACT: The cause of diminished extraction of Be and breakdown in selection in highly caustic media is the formation, on mineral surfaces, of a chemical compound between the Ca ion adsorbed on the mineral surfaces and the collector. Methods of neutralizing the harmful effects of Ca compounds are suggested.

                                                                    K. A.

Card 1/1

KUZ'KIN, S.F.; NEBERA, V.P.

Studying the effect of high-molecular reagents on the process
of thickening. Izv. vys. ucheb. zav.; tsvet. met. 2 no.3:44-49
'59.   (MIRA 12:9)

1. Krasnoyarskiy institut tsvetnykh metallov, Kafedra obogashcheniya
rud redkikh i radioaktivnykh metallov.
                    (Ore dressing--Equipment and supplies)

KUZ'KIN, S.F.; KOROVIN, N.V.

Research carried out in 1958 by the M.I.Kalinin Institute
of Nonferrous Metals and Gold in Moscow. Izv.vys.ucheb.zav.;
tsvet.met. 2 no.4:151-152 '59.   (MIRA 13:1)
              (Moscow--Metallurgical research)

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Increasing the secondary concentration of scheelite and
powellite. Izv.vys.ucheb.zav.; tsvet.met. 2 no.6:52-59
'59.   (MIRA 13:4)

1. Krasnoyarskiy institut tsvetnykh metallov. Kafedra
obogashcheniya rud redkikh metallov.
                (Ore dressing) (Scheelite)

18.2000

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S/136/60/000/02/005/022
E193/E463

AUTHORS: Kuz'kin, S.F., Nebera, V.P. and Mal'tseva, I.I.
TITLE: Application of Polyacrilamide in Thickening of
           Scheelite Concentrates

PERIODICAL:Tsvetnyye metally, 1960, Nr 2, pp 17-20 (USSR)

ABSTRACT: In continuation of work carried out at the Institute of
           Non-Ferrous Metals (Ref 4, 6, 7), the authors of the
           present paper have conducted a series of experiments on
           improving the efficiency of the thickening operations
           with the aid of polyacrilamide, which is generally
           regarded as a very good flocculating agent; (the product
           used in these experiments had been prepared in a pilot
           plant at the Leningrad Metallurgical Research Institute
           by polymerization of the products of hydrolysis of
           acrylonitryl with sulphuric acid; the colourless,
           gelatinous mass obtained in this manner contained 8% of
           active polyacrilamide).   The experiments were conducted
           on beneficiation products obtained at the Ingichkinsky
           Plant; the ore, treated at this plant at the time of the
           present investigation, contained 0.3 to 0.6 WO_3 in the
Card 1/9   form of scheelite, finely dispersed in pyroxenes and

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

pyroxene-garnet skarns, and up to 15% of gangue minerals
(granite and lime-stone). The ore was ground (to
contain 55 to 60% of the -0.074 mm fraction) in the
presence of sodium carbonate (approximately 4.5 kg/t),
pH of the pulp being maintained at 9.7 to 10.0;
prior to flotation, the pulp was treated with sodium
silicate (1.5 kg/t), after which oleic acid (0.27 kg/t)
mixed with equal quantity of kerosene, was added. The
roughing flotation yielded concentrate in the form of
pulp (23 to 24% solids) containing 2 to 4% WO_3, which
was fed into an 8 m thickener; the slime discharge
from the thickener (which was discarded) contained 50 to
60 g of solids per litre, the WO_3 content in these
solids being 0.6 to 0.8%, ie higher than in the crude ore.
To avoid these losses of scheelite, the slime discharge
from the thickener was, for some time, returned to the
flotation machine; this step, however, failed to produce
the desired results, owing to the fact that scheelite
can be successfully floated only directly after being
Card 2/9   conditioned with the flotation reagents and loses its

68494

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

flotability after being circulated; for this reason,
scheelite present in the slime discharge was not
recovered and was lost in the flotation tailings, apart
from the fact that the flotation process itself was
adversely affected by the introduction of the slime
discharge into the feed. The crude scheelite
concentrate (ie the sand discharge from the thickener),
mixed with sodium silicate (5.5 kg/t) was steamed out at
85 to 90°C and fed into the flotation machine of the
beneficiating cycle; the final flotation concentrate,
containing 55 to 60% WO_3, constituted a pulp with 30 to
40% solids and was thickened in four pyramidal settling
tanks (total area - 12 m^2, total volume - 13 m^3); the
slime discharge from these tanks, containing 55 to
65 g/l of solids with 6 to 12% WO_3, was treated again in
a cylindrical settling tank in series with several square
settling tanks (total area - 12 m^2, total volume - 12 m^3);
however, only 10% solids was recovered by this method,
Card 3/9   so that in each 15 m^3 of the slime discharge, 500 to

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

900 kg of valuable product was lost every day. In
the preliminary laboratory experiments, conducted in
glass cylinders (220 ml capacity), the following
flocculating reagents were tested: alkaline extract
from sea-weeds; carboxymethylcellulose, polyvinyl
alcohol; polyacrilamide; separan 2610; KODT (a
flocculant, obtained at the State Institute of Non-
Ferrous Metals by condensation of the vat residues
after distillation of hexamethylendiamine with
dichloretane and crude taliol oil); PANG (partially
hydrolized polyacrilamide); stiromal (Czechoslovakian
reagent - ammonium salt of a copolymer of styrol and
maleic anhydride); sodium polyacrylate. Of these,
only polyacrilamide, separan 2610, KODT and polyvinyl
alcohol were found to have the desired effect on the
rate of settling of the pulp and on the quality of the
effluent. The effectiveness of these flocculating
agents is illustrated by the following data: after
24 h settling, the clarified portion of the final

Card 4/9   concentrate contained 33 g/l solids; the clarified

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

portion of the same concentrate to which 50 to 60 g/t
of the flocculant (polyacrilamide or separan) had been
added, contained only 1 g/l solids after 10 to 15 min
settling. To obtain similar results in the case of
rough concentrate, 120 g of the flocculant had to be
added per 1 t of the solids in the pulp. After
addition of polyvinyl alcohol (300 g/t) or KODT (600 g/t),
the clarified portion of the pulp, after 10 to 15 min
settling, contained 5 to 6 g/l solids. The effectiveness
of the flocculating agents was found to depend on the
manner in which they were introduced. When the
flocculant, in the form of an 0.1% solution, was added
to the pulp in the cylinder all at once, no flocculation
occurred unless 150 g/t of the reagent was added, and
even then the clarified portion of the pulp after 2 h
settling, contained 15 g/l solids; on the other hand,
when the flocculant was introduced in three doses,
better clarification was attained at a lower consumption
(100 g/l) of the flocculating agent; when 150 g/l of the
Card 5/9   flocculant was added in this manner, the liquid portion of

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

the pulp became absolutely clear after 5 to 6 min
settling. For rapid measurement of the transparency
of the liquid, a photo-exponometer, of the "Leningrad"
type, was used; it had been roughly calibrated by
determining the position of the pointer for pure water
(fifth division on the scale) and for water containing
more than 20 g/l solids (second division on the scale),
and the relative transparency of the clarified portion
of the pulp in various experiments was described by
quoting the reading of the instrument. This method was
used in presenting the results of experiments in which
the effect of the method of adding 50 g/t of
polyacrilamide to the rough concentrate on the settling
process, had been studied; these results are reproduced
in Table 1 under the following headings: settling time,
min; transparency of the clarified portion of the
liquid when the flocculant, in the form of an 0.5%
solution, had been added in six doses; transparency of
the clarified liquid when the flocculant, in the form of
Card 6/9   an 0.006% solution, was added in ten doses. It will be

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S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

seen that if a low consumption of the flocculant
is aimed at, it has to be used in a highly diluted form;
thus, for instance, when only 50 g γt of the reagent is
used, it should be diluted to 0.006%. Similar results
were obtained for settling of the final concentrate in
the case of which 35 g/t of the flocculant, diluted to
0.002%, gave satisfactory results although, when further
dilution was attempted, no flocculation took place unless
more reagent was used. The laboratory investigation
was followed by a series of industrial tests in which
polyacrilamide was used. The flocculant was fed
continuously for 38 h into the 8 m thickener; the
specific consumption of the reagent was calculated from
the data on the quantity of the treated ore and the
quantity of flocculant used during this period. When no
flocculant was applied, the slime discharge of the
thickener contained 50 to 67 g/l solids; in the presence
of the flocculant, the content of solids in the slime
discharge was reduced to 12 to 20 g/l, the corresponding
Card 7/9   consumption of the flocculant being 90 to 30 g/t. In

68494

S/136/60/000/02/005/022
E193/E463

Application of Polyacrilamide in Thickening of Scheelite Concentrates

this way, the content of solids in the slime discharge from the thickener was reduced by more than 75%, giving a daily saving of 3.5 to 6 t of valuable material. Some results of the industrial tests are reproduced in Table 2 under the following headings: conditions (no flocculant; no flocculant; flocculant added; flocculant added), shift; content (%) of WO_3 in the ore, tailings, and rough flotation concentrate, recovery (%) of WO_3 in the rough concentrate; WO_3 content (%) in the final concentrate. The effect of the polyacrilamide addition on thickening of the final concentrate was even more beneficial since, in this case, it was possible to add a larger proportion of this reagent; in the absence of the flocculating agent, the clarified liquid, after 8 h settling, contained 60 g/l solids; when polyacrilamide was added (30 l of 0.5% solution per each 1.55 t of the concentrate), the clarified liquid, after 6 h settling, contained practically no suspended solids. It was estimated that if 50 g of the flocculant were used per 1 t of the

Card 8/9

S/136/60/000/02/005/022
E193/E483

Application of Polyacrilamide in Thickening of Scheelite
Concentrates

rough concentrate (70 to 80 t of which are treated daily),
the value of the increased output would reach 120000 to
250000 roubles per annum; in the case of the final
concentrate, the application of 0.3 kg of polyacrilamide
per day would increase the value of the yearly output by
180000 to 230000 roubles, giving the total savings of
280000 to 460000 roubles per annum. There are 2 tables
and 8 references, 6 of which are Soviet and 2 English.

ASSOCIATIONS: Institut tsvetnykh metallov im M.I. Kalinina
(M.I. Kalinin Institute of Non-Ferrous Metals)
Ingichkinskaya obogatitel'naya fabrika
(Ingichkinsky Beneficiation Plant)

Card 9/9

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Effect of froth sparying on an increase in flotation speed
of scheelite and powellite ores. Izv. vys. ucheb. zav.; tsvet.
met. 3 no.3:30-37 '60.   (MIRA 14:3)

1. Krasnoyarskiy institut tsvetnykh metallov, Kafedra obogashcheniya
rud redkikh metallov.
              (Flotation)   (Scheelite)   (Powellite)

KUZ'KIN, S.F.; NEBERA, V.P.

Mechanism of polyacrylamide floculator action. Sbor. nauch. trud.
GINTSVETMET no.33:202-216 '60.   (MIRA 15:3)
        (Flotation--Equipment and supplies) (Acrylamide)

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Secondary concentration and the kinetics of scheelite and
powellite flotation. Sbor. nauch. trud. GINTSVETMET no.33:
217-236 '60.
(MIRA 15:3)
(Scheelite) (Powellite) (Flotation)

KUZ'KIN, S.F.

AUTHORS:
TITLE:
PERIODICAL:
ABSTRACT:

Card 1/3

Card 2/3

Card 3/3

KUZ'KIN, S.F.; ZOLIN, S.N.

Phonomena of the aggregation of mineral particles in the pulp.
Izv. vys. ucheb. zav.; tsvet. met. 4 no.4:24-29 '61. (MIRA 14:8)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra obogash-
cheniya rud redkikh metallov.
(Flotation)

KUZ'KIN, S.F.; ZOLIN, S.N.

Flocculating action of polyacrylamide compounds on certain ore pulp
components. Izv. vys. ucheb. zav.; tsvet. met. 5 no.2:45-49 '62.
(MIRA 15:3)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra obogashcheniya
rud redkikh i radioaktivnykh metallov.
(Flotation) (Acrylamide)

KUZ'KIN, Sergey Fedorovich; NEBERA, Vladimir Petrovich; TAUBMAN,
A.B., retsenzent; SUVOROVSKAYA, N.A., otv. red.;
MAKRUSHINA, Ye.A., red.izd-va; BOLDYREVA, Z.A., tekhn.
red.; LOMILINA, L.N., tekhn. red.

[Synthetic flocculants in dewatering processes] Sinteti-
cheskie flokulianty v protsessakh obezvozhivaniia. Mo-
skva, Gosgortekhizdat, 1963. 243 p.   (MIRA 17:1)

KUZ'KIN, S.F.; SOLNYSHKIN, V.I.; CHZHEN YU-LUN [Cheng Yu-lung]

Investigating by methods of radiometry and infrared spectroscopy
the mechanism of the interaction of the AHP cation collector with
apatite and calcite. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:
35-39 '63.   (MIRA 16:9)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya
poleznykh iskopayemykh.
      (Flotation—Equipment and supplies) (Radiometry)
                    (Spectrum, Infrared)

KUZ'KIN, S.F.; NEBERA, V.P.; YAKUBOVICH, I.A.; ZOLIN, S.N.

Studying the mechanism of the action of polyacrylamide flocculants. Izv. vys. ucheb. zav.; tsvet. met. 6 no.4:34-43 '63. (MIRA 16:8)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya rud redkikh metallov.
      (Flotation—Equipment and supplies)

KUZKIN, S. F.; NEBERA, V. P.; ZOLIN, S. N.

"On some points of the theory of suspensions flocculation by polyacrylamides."

report submitted for 7th Intl Mineral Processing Cong, New York, 20-25 Sep 64.

PARSHENKOV, S.A.; KUZ'KIN, S.F.; KHAN, G.A.; PANTELEYEVA, N.F.

Electron microscopy of the state of aggregation of limonite
and ferromolybdite suspensions in connection with their
floatability. Izv. vys. ucheb. zav.; tsvet. met. 7 no. 4:
30-31 '64   (MIRA 17:1)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya
rud redkikh i radioaktivnykh metallov.

MIKHAYLOV, P.G., kand.tekhn.nauk; CHUCHUSHKOV, M.K., inzh.; KUZ'KIN, V.A., inzh.

Increasing the efficiency of the system of working inclined layers
with filling. Sbor. KuzNIUI no.9:20-42 '61.   (MIRA 16:5)
(Kuznetsk Basin--Coal mines and mining) (Mine filling)

KUZ'KIN, V.G.

Mathematical determination of exhaust pressure impulse of a two-cycle engine. Trudy LKI no.26:95-105 '59.   (MIRA 14:9)

1. Kafedra sudovykh dvigateley vnutrennego sgoraniya Leningradskogo korablestroitel'nogo instituta.
                         (Superchargers)

KUZ'KIN, V.G., inzh.

Effect of a controlled exhaust valve on the operation of a
two-stroke engine with contour scavenging. Sudostroenie 28
no.7:32-35 Jl '62.   (MIRA 15:8)
          (Marine engines)   (Valves)

USSR / Soil Science. Organic Fertilizers.   J

Abs Jour: Ref Zhur-Biol.; No 21, 1958, 95758.

Author   : Kuz'ko, F. S., Yarchuk, I. I., Dem'yanenko, V. D.
Inst   : Kharkov University.
Title   : Experiment in the Use of Humic Fertilizers in
           Khersonskaya Oblast.

Orig Pub: V. sb.: Guminovye udobreniya, Khar'kov, Khar'kovsk.
          un-t, 1957, 277-284.

Abstract: In 1954 and 1955 in Khersonskaya Oblast, under
          production conditions, broad tests (carried out
          on chestnut, sandy and calyey soils) of the ef-
          fect of humophos during local application under
          potatoes, cabbage seedlings and other vegetables
          from a calculation of 40-50 g per patch (8-10 c/ha)
          showed its high effectiveness under conditions of
          good agricultural engineering. -- O. P. Mikhaylova.

Card 1/1

POPOVA, I.M., kand.sel'skohkhoz. nauk; PRISHCHEPA, A.G.; KUZ'KO, L.F.

Effectiveness of fertilizers in the irrigated lands in the southern Ukraine. Zemledelie 26 no. 4·62-66 Ap '64.

(MIRA 17:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut oroshayemogo zemledeliya.

USSR/Soil Science. Organic Fertilizers   J-6

Abs Jour : Ref Zhur - Biol., No 20, 1958, No 91477

Author   : Khristeva L.A., Yarchuk I.I., Kuz'ko M.A.
Inst   : Kharkov Univ.
Title   : Physiological Principles in the Technology of Humus Fer-
           tilizers.

Orig Pub : V sb.: Guminovyye udobreniya. Khar'kov, Khar'kovsk. un-t,
           1957, 163-184

Abstract : No abstract

Card   : 1/1

36

KUZ'KO, O., inzh.

Device for plotting ground line gradients using theodolites.
Na stroi.Mosk. 2 no.6:25 Je '59.   (MIRA 12:8)
            (Surveying--Instruments)

KUZ'KO, Yu.P.

Ways of reducing the weight and over-all dimensions of powerful presses. Kuz.-shtam. proizv. 1 no.8:18-21 Ag '59.

(MIRA 12:12)

(Power presses)

ROZHKOV, V.M.; SHOFMAN, L.A.; ROZANOV, B.V.; KUZ'KO, Yu.P.; PONGIL'SKIY, N.F.;
        LIVANOV, V.A.; LUCHIN, V.V.; KUZNETSOV, K.I.; TSYPER, V.A.;
        CHERNOSHTAN, V.K.

        Points for pipe presses. Biul.TSIICHM no.9:52   MIRA 15:4)
                (Pipe mills—Equipment and supplies)

S/193/61/000/002/006/009
A005/A004

AUTHOR: Kuz'ko, Yu.P.

TITLE: A New Trend in Designing Heavy Presses

PERIODICAL: Byul. tekhn.-ekon. inform., 1961, No. 2, pp. 26 - 30

TEXT: The use of one-piece large-size structural components instead of as-
sembled or welded bodies, which considerably increases productivity, requires the
application of unique heavy presses of vertical and horizontal design. The ex-
perience in the design and operation of heavy and superheavy presses of universal
applicability shows that the present press design do not meet the requirements.
New designs of unique heavy presses must meet the following conditions: multiple
decrease in the over-all dimensions and weight, and, subsequently, a reduction in
time and costs of production; considerable increase in the precision of the forg-
ings being pressed by approaching the dimension of the power units to those of
the tool, and by increasing the structural rigidity of the presses; a considerable
increase in productivity on account of selecting an expedient stroke magnitude of
the press; a drastic increase in operation speed; maximum mechanization and auto-
mation by performing the auxiliary operations outside the operation zone of the

Card 1/4

A New Trend in Designing Heavy Presses

S/193/61/000/002/006/009
A005/A004

press. These conditions can be realized by widely using welded-forged structures, rolled plate steel, and prestressed concrete for the foundation parts. Superheavy presses of new design are already produced in the industry. The required conditions are obtained by using designs of one cylinder or the "tandem" design, by increasing the pressure of the pressure fluid in the power cylinders, and by designing the fundamental press units in one piece made of high-strength steels ore prestressed reinforced concrete. A simplification in the design of the new superheavy presses is effected by combining the operational functions of several principal press components in one single unit, e.g., the casing serves simultaneously as bandage of the operating cylinder, and the fixing of the tool to the reliably guided power plunger, does away with the movable crosshead. In 1956-1960, new designs of heavy and superheavy hydraulic forging presses were developed with a capacity of 15,000 - 200,000 tons, as well as unique horizontal presses of the "880", "1,700", and "3,000" type; these designs were realized with the participation of quite a number of interested organizations, in particular of the Novo-Kramatorskiy Mashinostroitel'nyy zavod im. Stalina (Novo-Kramatorsk Mechanical Engineering Plant im. Stalin). The main parameters of the new superheavy presses are compared with the parameters of the so-called "Universal" presses of identical capacity and purpose in the brochure by Yu.P. Kuz'ko and Ye.M. Petrushev under the

Card 2/4

S/193/61/000/002/006/009
A005/A004

A New Trend in Designing Heavy Presses

title "Heavy Small-Size Presses". To evaluate this comparison, it has to be taken into account that the total capacity of all unique-heavy presses of 15,000 t and more, which were put into operation in the USSR in 1960, amounts to only 60,000 t. According to preliminary data, by 1965 presses with a total capacity of more than 2 million t have to be put into operation in the USSR, i.e., the actual capacities of the corresponding branches of industry will be increased by more than 30 times. during the Seven-Year Plan (See the periodical: Kovochno-shtampovochnoye proiz-vodstvo, 1959, No. 8, p. 18). The expediency and the special effectiveness of the new structural solutions in unique-power press building are illustrated by the following example: the weight of a forging press of 30,000 t capacity can be de-creased from 6,500 t down to 410 t, which also reduce the costs of such a press by 14 times.

Card 3/4

A New Trend in Designing Heavy Presses

S/193/61/000/002/006/009
A005/A004

Figure: Total view of a 15,000 ton capacity press of new design
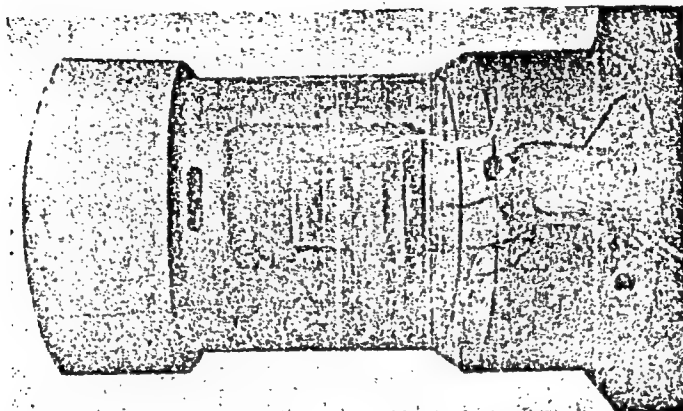
Card 4/4

KUZ'KOKOVA, N.N.

Oldest explorer of the North (in honor of the 75th birthday of A.A.Chernov).
Biul.MOIP. Otd.geol. 28 no.1:69-75 '53.   (MLRA 6:11)
                        (Chernov, Aleksandr Aleksandrovich, 1877-)

KUZ'KOKOVA, N.N.; CHEBYKINA, N.V.

Lime resources for liming soils in Sysola District in the Komi
A.S.S.R. Trudy Komi fil. AN SSSR no.2:27-31 '54.   (MLRA 9:11)

(Sysola District--Lime)

KUZ'KOKOVA, N.N.

Lithological survey of lower Permian deposits in the middle Pechora
Basin.   Trudy Komi fil. AN SSSR no.9:135-147 '60.   (MIRA 15:1)
                    (PECHORA VALLEY—PETROLOGY)

KUZ'KOKOVA, N.N.

Correlation of stratigraphic scales of the Lower Permian of the
Pechora coal basin, middle and upper Pechora Valley, Kolva-Vishera
region, and Timan Ridge. Trudy Inst.geol. Komi fil. AN SSSR no.2:
122-131 '62.   (MIRA 15:7)
                (Komi A.S.S.R.--Geology, Stratigraphic)

KUZ'KOKOVA, N.N.

Facies and paleogeography of the Lower Permian in the middle
Pechora Valley. Trudy Inst.geol.Komi fil. AN SSSR no.3:55-66
'62.   (MIRA 16:9)
                        (Pechora Valley--Paleogeography)
                        (Pechora Valley--Geology, Stratigraphic)

KUZ'KOKOVA, N.N.

Aleksandr Aleksandrovich Chernov, 1877-1963; obituary. Izv.
Komi. fil. Geog. ob-va SSSR no.8:96-99 '63.   (MIRA 17:6)

CHUPRYNIN, V.A.; KULYAKOVA, N.N.

'Pugussel' washout in the northern part of the Ural Mountain
region. Dokl. AN SSSR 165 no.4:911-914 D '65.

(MIRA 18:12)

1. Institut geologii Komi filiala AN SSSR. Submitted June 4,
1965.

OVSYANNIKOV, N.; ZORIN, N.; MATLIN, G.; KUZKOV, L.; VENDROV, S.

Improve the full use and preservation of U.S.S.R. water resources.
Rech. transp. 19 no.11:32-35 N '60.   (MIRA 13:11)
                (Water supply engineering)

57/49T72

KUZLIK, M.

UBBR/Medicine - Medical Societies   May 48
        Medicine - Surgery

"Minutes of the Meeting of the Leningrad Society
of Surgeons and Orthopedists" 4 1/3 pp

"Vest Khirurgii" Vol LXVIII, No 5

The 251st meeting opened 3 Mar 48. M. Kuzlik was
chairman and Z. A. Lyandres secretary. Several
reports discussed included G. S. Rylova's "Treat-
ment of Ulcers of the Extremities by Paravertebral
Intracutaneous Injections of Novocain."

57/49T72

PRISHCHEP, L.G., dotsent, kand. tekhn. nauk; KUZLYAKIN, Yu.N., aspirant

Methods for electrically heating hotbeds with film coverings.
Izv. TSKHA no. 1:207-212 '65   (MIRA 19:1)

1. Kafedra elektrifikatsii sel'skokhozyaystvennogo proizvodstva
Moskovskoy sel'skokhozyaystvennoy ordena Lenina akademii imeni
Timiryazeva.

P/034/61/000/012/001/003
D265/D305

AUTHORS: Kuźma, Czesław, and Kuźma, Eugeniusz

TITLE: Unbalanced Wheatstone bridge with double primary de-
             tector

PERIODICAL: Pomiary, Automatyka, Kontrola, no. 12, 1961, 481-485

TEXT: From the condition of equilibrium of a Wheatstone bridge, it
follows that the sensitivity of the bridge will be increased if the
cause which throws the bridge out of balance will affect equally
both opposite branches. The primary detectors shown in Fig. 1
should be situated, therefore, close to each other and should work
as a point detector for the proper functioning of the circuit.
Double thermistors, therefore, shown in Fig. 2, give the ideal con-
dition and this paper provides an analysis of double detector sys-
tems as compared with the simple detector bridges. Two cases are
considered for the double detector Wheatstone bridge: one with iden-
tical elements and the other with elements of different initial re-
sistances. The current gain defined as the amount, by which the

Card 1/3

Unbalanced Wheatstone bridge ...

P/034/61/000/012/001/003
D265/D305

current necessary for the double detector bridge is greater than that required for a similar arrangement, but with a single detector gives the criterion for the analysis of two systems which provides the formulae and graphs showing the following advantages of the double detector bridge circuit: the possibility of decreasing the loading is of importance for accurate temperature measurement and in the cases where the temperature increase affects the accuracy of readings. The increase in the current sensitivity enables less sensitive detectors to be employed and lower voltages to be used. The use of double detectors is especially recommended in bridge circuits which require equal resistances in all branches. There are 9 figures and 7 Soviet-bloc references.

Card 2/3

Unbalanced Wheatstone bridge ...

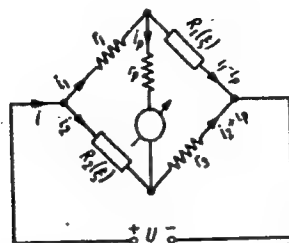P/034/61/000/012/001/003
D265/D305

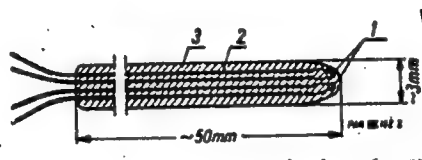Fig. 1

Wheatstone bridge with double detectors

Fig. 2

Double thermistor detector. Legend: 1 - thermistors, 2 - leads, 3 - cover

Card 3/3

KUZMA, C.; KUZMA, E.

The unbalanced Wheatstone bridge with a double measuring element.
Archiw elektrotech 11 no. 1:137-151 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Tech-
niki, Polska Akademia Nauk, Warszawa.

KUZMA, Cz.

Influence of the type of heat treatment on the thermistor properties of sintered cobalt and manganese oxides. Archiw elektrotech 12 no.2: 463-469 '63.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

ACCESSION NR:

AUTHOR:

TITLE: Effect of copper oxide additions on the thermistor properties of manganese oxide - nickel oxide sinters

SOURCE:

TOPIC TAGS: thermistor, manganese oxide component, nickel oxide component, copper ... temperature re-

temperature coefficient

ABSTRACT: This study was made for the purpose of determining the effect of small ... additions on the thermistor properties of A2 and A5 materials consisting of ... and Ti in the atomic ratio of ... and 5:1, respectively,

furnace ... temperature from

Card 1/2

ACCESSION NR:

addition reduces the optimum material with the CuO, and 3) the resistivity
and resistivity temperature coefficient decrease but without any substantial loss
resistivity and
figures.

ASSOCIATION:

SUBMITTED: 24Jun64   ENCL: SUB CODE: MM, EC

NO REF SOV: 001   OTHER: 002

Card 2/2

AUTHOR: KUZMA, Cz.

TITLE: Effect of heat treatment on the thermistor properties of sinters from A sub 6 manganese-nickel material

SOURCE: Archiwum elektrotechniki, v. 13, no. 1, 1964, 253-256

ABSTRACT: This study was made for the purpose of developing a heat treatment

temperature. The sintered samples were coated with a silver paste and heated for electrodes and after rull air cooling they were subjected to constant temperature of

Card 1/2

L F1543-45
ACCESSION NR: AP5010649

that thermist rs with stable and reproducible parameters can be obtained from A⌀
⌀, and good stability. In these samples ... sintering temperature. This

art. has: 3 figures.

ASSOCIATION: Zaklad Elektroniki (Institute of Electronics)

SUBMITTED: 26Jun64   ENCL: OC   SUB CODE: MM, EC

NO REF SOV: 000   OTHER: 003

Card 2/2

R-3

COUNTRY   :   Poland

CATEGORY   :

ABS. JOUR.   :   RZKhim., No. 5 1960, No.   18171

AUTHOR   :   Kuzma, E.

INST.   :   Not given

TITLE   :   Comments on the Effect of Supertemperatures on
                 Thermistors

ORIG. PUB.   :   Pomiary, Automat, Kontrola, 5, No 4, 154-155 (1959)

ABSTRACT   :   The author notes the following inaccuracies in the
                 article by F. Ciborowski, 'The Effect of Thermis-
                 tor (T) Supertemperatures on the Measurement of
                 Temperature' (RZhKhim, 1958, No 4, 11646): (1)
                 the method proposed by Ciborowski for expressing
                 the resistance of an unloaded rheostat cannot be
                 applied in the case of T, since their resistance
                 is an exponential rather than a linear function of
                 the load; (2) the resistance of T depends on cool-
                 ing conditions throughout the temperature range;

CARD: 1/2

POL/19-8-1-13/14

AUTHOR: Kuzma, E.

TITLE: Measurement of Thermistor Thermal Time Constant

PERIODICAL: Archiwum Elektrotechniki, 1959, Vol 8, Nr 1, pp 201-207
                (Poland)

ABSTRACT: In warming process of thermistor temperature difference
                T_x between the thermistor temperature T and that of
                surrounding is varying approximately according to the
                equation:

$$T_x = T_{x\,max} \left(1 - e^{-\frac{t}{\tau}} \right)$$

where $T_{x\,max}$ is the temperature difference in steady
state, t is the time corresponding to temperature differ-
ence T_x , $\tau = \frac{H}{K}$ (sek) is the thermistor thermal time
constant equal to the quotient of heat capacity and the
dissipation constant. It denotes the time past which
the temperature difference is equal to

$$\left(1 - \frac{1}{e} \right) T_{x\,max} = 0.63\, T_{x\,max}$$

ZAKLADZIE
ELEKTRONIKI IPPT,
Poland   Card 1/3

Measurement of Thermistor Thermal Time Constant

Due to difficulties of the heat capacity measurement of thermistor, the determining of its thermal time constant after the classical method is rather troublesome. Therefore, various indirect measurement methods based upon the finding of τ out of the electrical magnitudes are applied. The suggested measurement method of τ makes use of the transient voltage of the thermistor (Fig 3). The space of time counted from the instant of the thermistor being loaded until the thermistor voltage will drop to

$$u(t) = \left(1 + \frac{1}{e}\right) U_0 = 1.37 \ U_0$$

is taken as the value of τ. The value of the loading current I_0 is so chosen that in steady state of the thermistor reistance it is equal to $R_0 = 0.5 \ R_{25}$. With the aid of measurement arrangement made after the suggested method the static $U = f(I)$ characteristics as well as the dynamic characteristics of transient voltage of thermistor $u = f(t)$ may be determined. The

Card 2/3

Measurement of Thermistor Thermal Time Constant   POL/19-8-1-13/14

measurement records of the thermistors of Polish origin
are given in Table 2 and Fig 6. There are 4 graphs, 1
diagram, 1 circuit diagram and 3 references, 1 of which
is English, 1 German and 1 Polish.

SUBMITTED: October 2, 1958

Card 3/3

KUZMA, E.

Thermistors. (To be contd.) p. 28.

RADIOAMATOR (Publication for amateur radio operators. Title varies: before 1954,
Radio Amator. Monthly) Warszawa, Poland.
Vol.9, no.11, Nov. 1959.

Monthly list of East European Accessions (EEAI) LC, Vol.9, no.1, Jan. 1959.

Uncl.

9.4320 (2801, 3003, 1935,)

84456
P/034/60/000/007/002/003
A225/A026

AUTHOR: Kuzma, Eugeniusz, Master of Engineering

TITLE: Examination of the Characteristics of Polish-made Thermistors

PERIODICAL: Pomiary-Automatyka-Kontrola, 1960, No. 7, pp. 263-266

TEXT: The article describes the methods employed for determining
the following characteristics of Polish-made thermistors: the actual re-
sistance offered by the thermistor at various temperatures, the stability
in the functioning of the thermistor at various temperatures, and the time
constant.   The constant B of the thermistor material shows an error Δ
whenever the temperature surpasses a certain value in either direction.
Measurements were made for thermistors made of NiO and Mn_2O_3 (marked as
A2 for atomic ratio of nickel and manganese 1:2, as A5 for the ratio 1:5),
as well as with additions of copper oxide (marked as B2 for 32 % addition
of copper oxide to A2, as K2 with 43 % of CuO). The results are shown in
Figures 3 (A2), 4 (A5), 5 (K2), and 6 (B2). The error Δ does not exceed
1 % for A5 between 10 and 80 $^{\circ}$C, for A2 between -5 and 75 $^{\circ}$C, for B2 between
-10 and 60 $^{\circ}$C, and for K2 between 0 and 60 $^{\circ}$C. The examination of the sta-
bility was conducted after the artificial aging of thermistors at high

Card 1/ 3

84456

P/034/60/000/007/002/003
A225/A026

Examination of the Characteristics of Polish-made Thermistors

temperatures.   The materials examined were A2, A5, and K2.   The examina-
tions were conducted in Hoeppler's ultrathermostat in petroleum jelly at
25°C.   The temperature was measured with the Beckmann thermometer, the re-
sistance with the Wheatstone bridge.   After 10 months in normal room tem-
perature the deviations were less than the error of measurement (0.12 %).
Afterwards the thermistors were kept for 3000 hours in a temperature lower
by 20 % than the temperature of the aging process.   More than 2/3 of the ther-
mistors measured showed deviations smaller than the measuring error, with
the rest the deviations did not exceed 1.5 %. Finally the thermistors were
held for several hours in temperatures changing suddenly from -70°C to
+150°C and vice versa.   The deviations were smaller than the error of the
measuring instruments.   The author states that the quality of the Polish-
made thermistors often surpasses in this respect that of thermistors pro-
duced abroad.   The time constant of the thermistors was measured in a sys-
tem, the block diagram of which is presented in Figure 11 and the wiring
diagram in Figure 12.   The stages of the block diagram are as follows:
Z1 - Generator 1, T - thermistor stage with switch W, S - the triggering
stage, Z2 - Generator 2 controlled by the triggering stage, RC - integrat-

Card 2/3

64456
S/034/60/000/007/002/003
A 225/A026

Examination of the Characteristics of Polish-made Thermistors

ing stage, VL - vacuum-tube voltmeter. Time readings were: 0.1 - 3 sec.;
1-30 sec., the load varied from 0.02 to 25 ma, accuracy 10 %. The time
constants for various types are as follows: ZE7 (a pearl, in vacuum): 1 sec.,
ZE3 (a pearl, in glass tube) - 4 sec., ZE9 (a pearl, fastened on a copper
plate): 2-4 sec., ZE8 (indirectly heated in vacuum): 8-20 sec., depend-
ing on the thickness of the pearl's insulation. There are 13 figures and
1 table.

ASSOCIATION: Zakład Elektroniki IPPT - PAN (Electronics Institute, Insti-
tute for Basic Problems of Engineering, Polish Academy of
Science)

Card 3/3

86726

9.4173
9.4320

P/034/60/000/010/004/005
A225/A026

AUTHOR: Kuźma, Eugeniusz, Master of Engineering

TITLE: The Calculations of Thermometric Thermistor Systems

PERIODICAL: Pomiary - Automatyka - Kontrola, 1960, No. 10, pp. 407 - 409

TEXT: The article is an attempt to determine the maximum admissible cur-
rent which may be applied to thermistors used for temperature measurements. Tem-
perature measuring by thermistors consists in the measurement of the inherent
thermistor temperature, which will always be higher than the measured medium due
to the heating effect of the measuring current passing through the thermistor.
This difference is determined by the so-called "loss coefficient K" of the ther-
mistor. Numerically it is equal to that power which has to be admitted to the
thermistor in order to raise its temperature by $1^\circ C$. This value K depends on
the medium in which the thermistor is placed: the lowest values are for air,
higher ones for oil, and still higher for water. The same energy which might on-
ly slightly influence the inherent thermistor temperature in water, might falsi-
fy the results if used in air without the necessary correction. The maximum pow-
er which may be applied to a thermistor with the loss coefficients K_1, K_2....K_n

Card 1/4

86726

P/034/60/000/010/004/005
A225/A026

The Calculations of Thermometric Thermistor Systems

(for various media) should not exceed the value in which the minimum K causes
the thermistor to raise its temperature above the admissible error. The author
then shortly reviews the principles of using the Wheatstone bridge for tempera-
ture measuring (his own work on this subject is quoted in a footnote), and shows
that the maximum load applied to a thermistor used in the Wheatstone bridge would
coincide with the balance condition only if the resistance (or impedance) of the
measuring instrument were infinitely high. He also asserts that in case a ther-
mistor is used as one of the bridge arms, the generally accepted principle that
the bridge sensitivity is highest when the bridge arms have equal resistance, is
not necessarily true. In Figure 8 he shows an example of two bridges used for
measuring with identical instrument currents in one of them the values of the
arms are different and calculated so that the load on the thermistor is only $\frac{1}{6}$
of that in the other circuit, which follows the conventional principle of "equal
arms". There are 8 figures and 1 Table.

ASSOCIATION: Zakład Elektroniki IPPT-PAN (Electronic Laboratory, Institute of
Basic Problems of Engineering, Polish Academy if Sciences)

Card 2/4

P/034/60/000/010/004/005
A225/A026

..culations of Thermometric Thermistor Systems

Table 1. Values of the loss coefficient of Polish-made thermistors

Type	$K \frac{mW}{°C}$		
	Air	Water	Petroleum Jelly
ZE1	8	35	21
ZE2	20	80	55
ZU3	0.6	2.6	1.6
ZE5	0.2	0.009	0.06
ZE7	0.01 ÷ 0.02	—	—

The Calculations of Thermometric Thermistor Systems

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P/034/60/000/010/004/005
A225/A026

Figure 8. / comparison of two meas-
uring .. them. a - system calculat-
ed for minimum load on thermistor;
b - system with equal bridge arms.
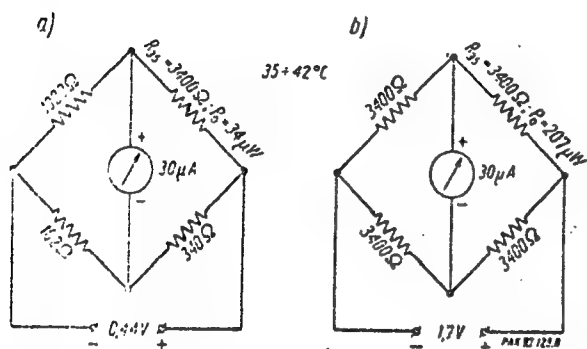
Card 4/4

P/034/61/000/012/001/003
D265/D305

AUTHORS: Kuźma, Czesław, and Kuźma, Eugeniusz

TITLE: Unbalanced Wheatstone bridge with double primary de-
tector

PERIODICAL: Pomiary, Automatyka, Kontrola, no. 12, 1961, 481-485

TEXT: From the condition of equilibrium of a Wheatstone bridge, it
follows that the sensitivity of the bridge will be increased if the
cause which throws the bridge out of balance will affect equally
both opposite branches. The primary detectors shown in Fig. 1
should be situated, therefore, close to each other and should work
as a point detector for the proper functioning of the circuit.
Double thermistors, therefore, shown in Fig. 2, give the ideal con-
dition and this paper provides an analysis of double detector sys-
tems as compared with the simple detector bridges. Two cases are
considered for the double detector Wheatstone bridge: one with iden-
tical elements and the other with elements of different initial re-
sistances. The current gain defined as the amount, by which the

Card 1/3

Unbalanced Wheatstone bridge ...

P/034/61/000/012/001/003
D265/D305

current necessary for the double detector bridge is greater than
that required for a similar arrangement, but with a single detector
gives the criterion for the analysis of two systems which provides
the formulae and graphs showing the following advantages of the
double detector bridge circuit: the possibility of decreasing the
loading is of importance for accurate temperature measurement and
in the cases where the temperature increase affects the accuracy of
readings. The increase in the current sensitivity enables less sen-
sitive detectors to be employed and lower voltages to be used. The
use of double detectors is especially recommended in bridge cir-
cuits which require equal resistances in all branches. There are
9 figures and 7 Soviet-bloc references.

Card 2/3

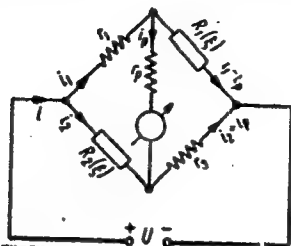Unbalanced Wheatstone bridge ...   P/034/61/000/012/001/003
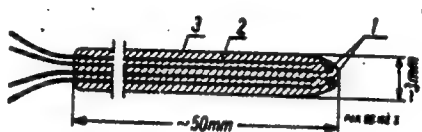D265/D305

Fig. 1

Wheatstone bridge with double detectors

Fig. 2

Double thermistor detector. Legend: 1 – thermistors, 2 – leads,
3 – cover

Card 3/3

P/019/61/010/001/003/006
D223/D305

AUTHOR: Kuźma, E.

TITLE: Production of auto oscillations with the help of
               thermistors

PERIODICAL: Archiwum elektrotechniki, v. 10, no. 1, 1961, 201-250

TEXT: A thermistor may be substituted for an equivalent electri-
cal circuit with an inductive and negative resistance as its ele-
ment. Hence, the thermistor (Th) may be used as a generator of slow
sinusoidal oscillations not exceeding a few cycles per second. The
advantage of this method consists in the small dimensions of the ge-
nerator, e.g. the usual LC oscillator for 0.005 c/s needs $L =$
10000 H and $C = 100000$ µF, while a Th oscillator needs only a capa-
citor of 30 µF and a thermistor size of the order of 1 cm. There
is a lack of literature on Th oscillators. The previous papers
written are all concerned with experimental results. The author
systematizes and discusses the basic parameters and characteristics
of the Th. The thermal differential equation for polarized Th is

Card 1/3

Production of auto oscillations ...

P/019/61/010/001/003/006
D225/D305

given and it is shown that it is equivalent to the equation of an electrical circuit, in which the Th represents an element having in ductance, a negative resistance, and a time constant. The generation of oscillations with load resistance connected in parallel or in series with the capacitor of the oscillating circuit is discussed. The circuits are considered from the point of view of the linear and non-linear theory of the reactive power balance of the harmonics. The formulae for the frequency under critical conditions when the oscillations are purely sinusoidal and relative frequency deviation is caused by the appearance of the current harmonics, are presented for series and parallel load connection. The influence of the ambient temperature and applied voltage on the generator frequency is analyzed. The temperature coefficient is negative and equal to about 2 % per degree centigrade. The theory described was confirmed on an experimental circuit, in which the temperature and voltage was varied in the range within ± 5 %. The difference between theoretical and experimental data did not exceed 15 %. There are 35 figures, 4 tables and 14 references: 6 Soviet-bloc and 8 non-Soviet-bloc. The references to the 4 most recent English-

Card 2/3

Production of auto oscillations ...   P/019/61/010/001/003/006
                                             D223/D305

language publications read as follows: R.E. Burgess, The a.c. admittance of temperature sensitive circuit elements. Proceedings Physical Society, B. 1955, s. 766; F.J. Hyde, The impedance of the thermistor at low frequencies, Journal of Electronics 1955, s. 303; F J. Hyde, Reactive effects in thermistors at very low frequencies. British communications and Electronics, 1957, s. 16; C.J.N. Candy, The specification of the properties of the thermistor as a circuit element in very low frequency systems, Journal I., E.E. 1955, s. 398.

SUBMITTED: April 8, 1960

Card 3/3

SCHMIDT, B.; KUZMA, E.

Double thermistor feeler ZE 12. Archiv elektrotech 10 no.2:
596.598 '61.

SCHMIDT, B.; KUZMA, E.

Auto-recording of the static voltage-current characteristics
of thermistors. Archiw elektrotech 10 no.2:598-599 '61.